ORIGINAL ARTICLE

Thymoma Associated Paraneoplastic Encephalitis: A Potentially Fatal but Treatable Entity

B.L. Kumawat*, Ruchi, Piyush Savaliya**, Mridula Singh****

ABSTRACT

A 20 year old male presented with headache and seizure episodes in SMS Medical College, Jaipur. His chest X-ray and computed tomography revealed a right anterior mediastinal mass. MRI brain revealed T2/FLAIR cortical and subcortical hyperintensities. He underwent Thymectomy and was diagnosed with Type B2 thymoma histologically. The condition of patient improved and he recovered completely and became fully oriented after Thymectomy. Thymoma associated paraneoplastic encephalitis (TAPE) is a rare disease entity having very few case reported worldwide. Hereby, we are reporting a case of paraneoplastic encephalitis associated with thymoma.

Key words: Thymoma, paraneoplastic encephalitis, thymectomy

INTRODUCTION

Paraneoplastic neurological syndromes (PNS) are rare disorders associated with tumor, not caused by direct invasion, metastasis or consequences of treatment. These are found in <1**%** of patients with a malignancy.The neurological symptoms precede the tumor diagnosis in approximately 65% of patients with PNS.50% of patients with thymoma have paraneoplastic neurologic syndromes myasthenia gravis being the most common. There are very few case reports of thymoma-associated paraneoplastic limbic or extralimbic encephalitis that can cause progressive neurologic decline and significant mortality without treatment. We report a case of a thymoma presenting as paraneoplastic encephalitis in a 20 year old male.

Clinical Summary

A previously asymptomatic 20 year old male presented with 20 days history of headache followed by 1 day history of 3 episodes of generalized tonic clonic seizure and altered sensorium. Brain magnetic resonanceimaging (MRI) showed bilateral foci of cortical and subcorticalnonenhancing signal abnormalities on T2-weightedimages (Figure 2). Chest x ray showed mediastinal widening with right hilar mass. Chest computed tomography (CT) revealed a large anterior mediastinal mass (Figure 1) that, on biopsy, showed type B2 thymoma(figure 3). Cerebrospinal fluid detected a predominantly lymphocytic pleocytosis. CSF was planned for antineuronal autoantibodies in the setting of a Thymic neoplasm but could not be done due to financial constraints of family.

Patient was managed with iv antiepileptics, steroids (IV Methyl prednisolone pulse) and IVIG (2gm/kg total dose). However, condition of patient continued to deteriorate, so, emergency Thymectomy was performed after obtaining high risk consent from the family. He started recovering after around 5 post operative days and became fully conscious and oriented at 10^{th} post op day. Repeat MRI brain done two months later showed complete resolution of all lesions (Figure 4). Two years after the operation, there is no evidence of recurrence of tumor (Figure 5) and patient is seizure free presently.

DISCUSSION

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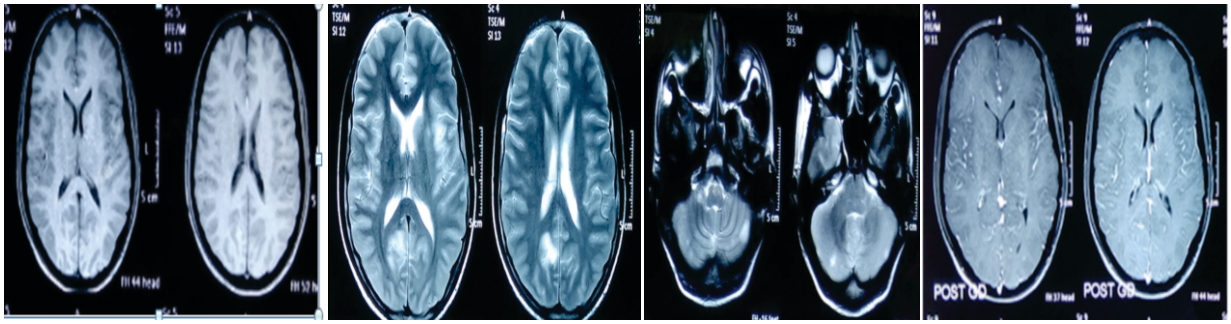

Figure 1 showing MRI brain with T2 hyperintesities involving both cerebral hemispheres and cerebellum with no contrast enhancement.

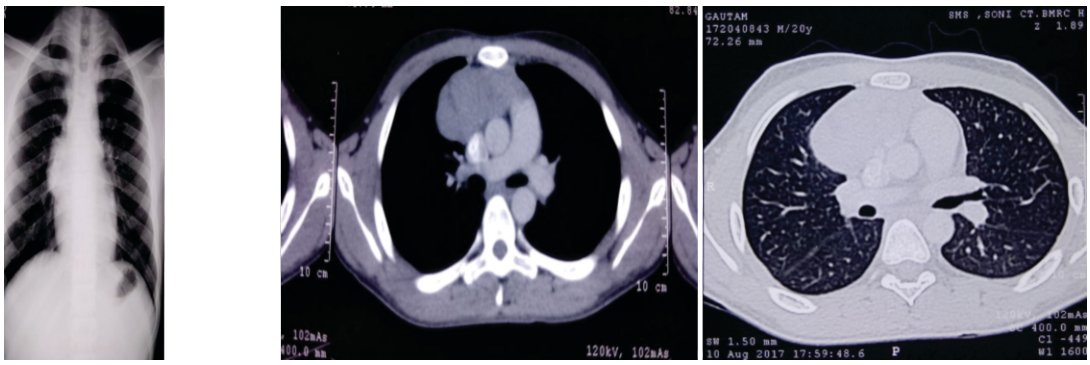

Figure 2 showing preoperative Chest Xray and CT Chest showing anterior mediastinal mass.

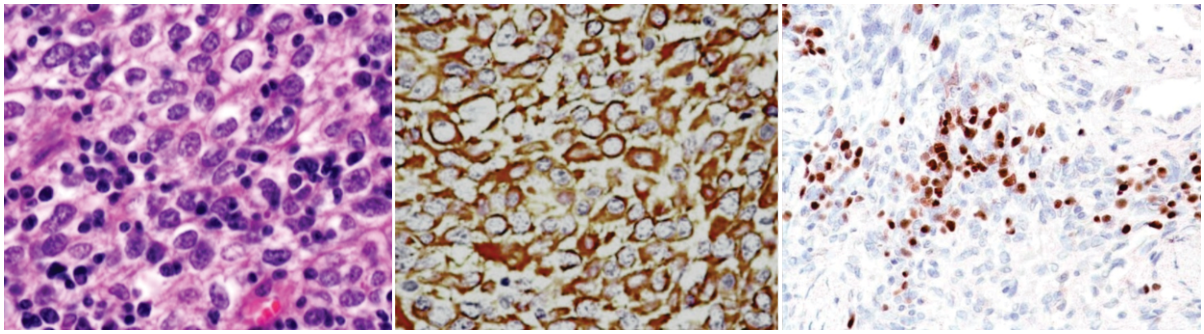

Figure 3 showing histopathology and IHC(pancytokeratin and Tdt positive epithelial cells) suggestive of thymoma

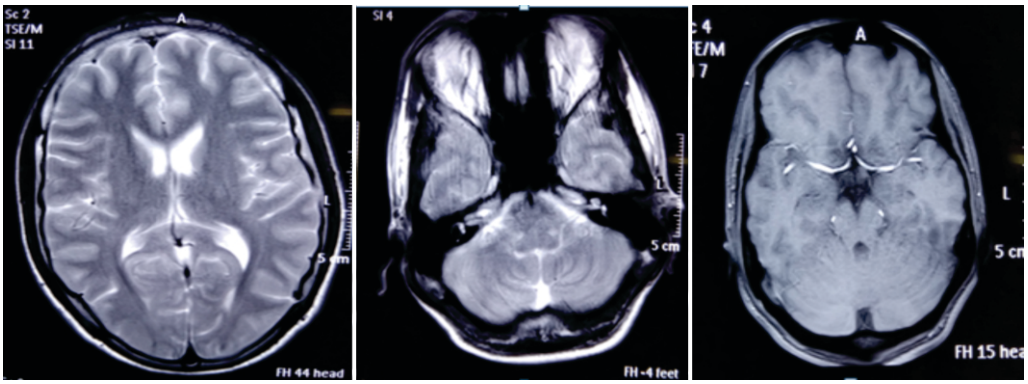

Figure 4 showing resolution of lesions on MRI Brain done 2 months after Thymectomy.

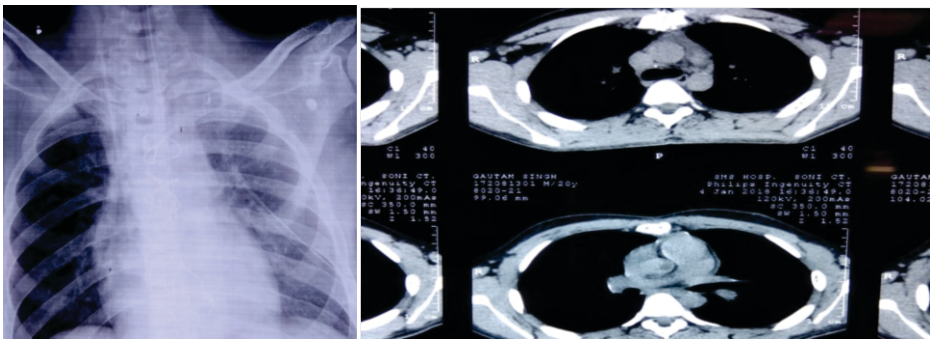

Figure 5 showing post operative Chest Xray and CT chest of the patient after 2 years

Thymoma is the most common type of tumor in the anterior mediastinum. The usual age of presentation is 40- 60 years of age (M=F).Myasthenia gravis is the most common paraneoplastic syndrome associated with thymoma[1]. First case of paraneoplastic encephalitis in the setting of thymic cancer was reported in 1988. Since then, very few case reports of thymoma associated paraneoplastic encephalitis (TAPE) have been reported[2] with no case reported from India. In most patients, neurologic manifestations include memory loss, confusion, and seizures. Seventy percent exhibited bilateral foci of nonenhancing hyperintensity on brain MRI, some appearing weeks after onset of symptoms. The differentials include metastases, primary brain tumors, and infection[2]. The presence of a mediastinal mass and pathologic confirmation of thymoma suggests a paraneoplastic syndrome in our case.Patients with Thymoma-associated encephalitis most commonly have VGKC-complex Abs-LGI1 andCaspr2, withmore likelihood of Caspr2- positivity[3] although other antibodies to CRMP-5, anti GAD and GABA-A Receptor have also been described in literature[4,5]. The diagnosis of TAPE is based on the combination of the Encephalitis syndrome, MRI findings, and detection of antineuronal autoantibodies in the setting of a Thymic neoplasm[2].The limitation of this case is inability to get CSF antineuronal antibodies done owing to non affordability of the family for the same.

Immediate intervention is necessary to manage TAPE in order to prevent progressive neurologic decline and death. Immunotherapy with IgG and corticosteroids will improve neurologic symptoms resulting from inflammatory response, but complete resection of the thymoma confers the best chance at disease-free survival from oncologic as well as paraneoplastic standpoints[6]. Plasmapheresis can be done in refractory cases[7].

It may take weeks to months after Thymectomy for symptom resolution[8]. Outcome is driven more by ongoing neurologic insult than the underlying thymic disease. The mortality rate in TAPE is thirty-three percent, due to the nervous system compromise[9]. Only 21% of patients with TAPE achieve symptom-free survival; all of these patients had complete resection of their thymoma[2].

It is necessary on the part of clinician to make an early link between thymoma and encephalitis which can lead on to immediate intervention in the form of complete thymoma resection giving patient the best chance of disease free survival.

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